

Physician Action Sheet for Abnormal Newborn Screen – Tyrosinemia

Newborn Screen Findings: Elevated tyrosine level on newborn screen, indicating possible tyrosinemia.

Differential Diagnosis: Tyrosinemia I (hepatorenal), tyrosinemia II (oculocutaneous), tyrosinemia III, transient tyrosinemia, liver dysfunction.

The Indiana University NBS Lab should have already contacted your office & the infant's birthing facility about the abnormal results & recommended confirmatory testing. The IU NBS Lab has also notified the Metabolic Specialist. *Please note that the IU NBS Lab does not contact the patient's family.*

Required Actions

1. **Contact the Metabolic Specialist (317) 274-3966 (ask for Newborn Screening Nurse or Genetic Counselor) to discuss abnormal results, follow-up recommendations & confirmatory testing.**
2. **Contact the family as soon as possible.** Inform the family of the abnormal NBS result & the need for additional confirmatory testing.
3. **Arrange for confirmatory laboratory testing at the infant's birthing facility.**
4. **Plan for follow-up with the Metabolic Specialist if tyrosinemia is confirmed.**

Clinical Summary:

- ***Tyrosinemia I*** – Autosomal recessive disorder of amino acid metabolism resulting from deficient activity of fumarylacetoacetase. Deficient activity of this enzyme leads to accumulation of succinylacetone, resulting in liver dysfunction & kidney involvement. If untreated, symptoms may appear early in infancy or later as a chronic form. Symptoms include feeding problems, vomiting, poor weight gain, hepatomegaly, jaundice, liver dysfunction, kidney problems & neurologic involvement.
- ***Tyrosinemia types II & III*** – Autosomal recessive disorders due to other enzyme defects in tyrosine metabolism. Individuals with untreated type II will develop corneal ulcerations & skin keratosis later in infancy.
- ***Other causes of elevated tyrosine*** include immature liver in prematurity & liver disease; additional follow-up required to identify the cause.

Treatment: Individuals with tyrosinemia require a special formula low in tyrosine & phenylalanine, as well as a low-protein diet. A special medication, Nitisone (NTBC), is used in tyrosinemia type I. Treatment of tyrosinemia types I & II is life-long & will require follow-up with Metabolic Specialist. Early diagnosis & prompt treatment will help ensure the best outcome for individuals with tyrosinemia.

Incidence: 1/100,000 nationally. Genetic testing available.

Contact Information:

- **Regular business hours:** (317) 274 – 3966; ask for the Newborn Screening Nurse or Genetic Counselor.
- **Emergency night/weekend contact:** (317) 944 – 5000; have the on-call Metabolism physician paged.

Resources:

- Newborn Screening ACT sheets – www.acmg.net (select “Resources,” click on “ACT Sheets”)
- Information for clinicians - <http://www.ncbi.nlm.nih.gov/sites/GeneTests/review>